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EDUCATION OF DISADVANTAGED CHILDREN IN CALIFORNIA, A REPORT TO THE CALIFORNIA STATE COMMITTEE ON PUBLIC EDUCATION.

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TO IDENTIFY THE LEARNING DIFFICULTIES OF DISADVANTAGED YOUTH AND TO DEVELOP POLICIES TO ADVANCE THEIR INTELLECTUAL DEVELOPMENT, EDUCATORS MUST DETERMINE THE SOURCES AND CAUSES OF THIS RETARDATION. THE DISTINCTION BETWEEN CERTAIN IRREVERSIBLE BIOLOGICAL SOURCES OF RETARDATION, SUCH AS GENETIC DEFECT OR BRAIN DAMAGE, AND SOCIAL SOURCES WHICH STEM FROM THE INDIVIDUAL'S ENVIRONMENT HAS NOW BECOME CLEAR. THE DISADVANTAGED CHILD, REARED BY PARENTS WHO DO LITTLE TO ENCOURAGE HIS COGNITIVE DEVELOPMENT, LACKS CERTAIN PERCEPTUAL, MOTIVATIONAL, AND VERBAL ABILITIES. THUS EDUCATORS MUST EMPHASIZE EARLY CHILDHOOD TRAINING TO OVERCOME THESE LINGUISTIC-COGNITIVE DEFICIENCIES WHICH HINDER ACADEMIC ACHIEVEMENT. HOWEVER LEVELS OF ACADEMIC ACHIEVEMENT VARY AMONG DIFFERENT SOCIAL CLASSES AND RACES, AND A STUDENT'S ACHIEVEMENT IS INFLUENCED BY THE QUALITY AND SOCIOCULTURAL CHARACTERISTICS OF THE SCHOOL HE ATTENDS. THUS EDUCATIONAL PROGRAMS MUST BE DESIGNED TO RELIABLY IDENTIFY AND EVALUATE THE VARIABLES WHICH CONTRIBUTE TO A PROGRAM'S SUCCESS OR FAILURE. EDUCATIONAL PARKS WHICH INCLUDE RESEARCH AND DEVELOPMENT CENTERS MAY BE PARTICULARLY EFFECTIVE BECAUSE THEY PROVIDE EDUCATORS WITH AN OPPORTUNITY TO EXPLORE THE COMPONENTS OF EFFECTIVE INSTRUCTION AND SUPPLY STUDENTS WITH QUALITY, INTEGRATED EDUCATION. SOME ONGOING PRESCHOOL PROGRAMS ARE SPECIFICALLY EXAMINED. (LB)

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EDUCATION OF DISADVANTAGED CHILDREN IN CALIFORNIA

A Report to the California State Committee on Public Education*

Alan B. Wilson, Arthur R. Jensen, and David L. Elliott

University of California
Berkeley, California

December, 1966

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Education of Disadvantaged Children in California

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University of California, Berkeley
December, 1966

Shifting euphemisms such as "educationally disadvantaged" or "culturally deprived" which have been applied in recent years by educationists to children of the poor and of minority groups whose modal academic achievement falls below national averages, are fraught with ambiguity. Simultaneously seeking to avoid stigmatization[1] and to impute public responsibility for amelioration of a "problem," the referent of these terms remains ill-defined.

Although unspecific, the terms reflect a conviction that the varying rates of academic success and attainment among identifiable social groups are consequences of systematic differences in environmental circumstances--rather than genetic endowment--and that these circumstances, whatever they may be, which impede educational attainment constitute inequalities in educational opportunity which should be rectified.

There is no question that there are gross differences in educational attainment among social groups in California as elsewhere. The median years of schooling attained by adults of different racial and ethnic groups reported in the 1960 census, for example, provides

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[1]Contrast, for example, the nuances of titles to earlier tracts on this topic: Leonard P. Ayers, Laggards in Our Schools (New York: Russell Sage Charities Publication Committee, 1909); William H. Dooley, The Education of the Ne'er-Do-Well (Boston: Houghton Mifflin Company, 1916).

a rank order which bears a gross relationship to indices of educational attainment of their children in school. Japanese and white "Anglos" have acquired the most schooling; Filipinos, Mexican-Americans, Indians, and Negroes have attained the least.

TABLE 1.--Population distribution and median years of schooling of adults, 25 years of age or over, by ethnicity; California, 1959*

Ethnicity	Population distribution		Median years of schooling of adults 25 and over
	Frequency	Per cent	
"Anglo"	13,028,692	82.9%	12.1 years
WPSS**	1,426,538	9.1	8.5
Negro	883,861	5.6	9.8
Japanese	157,317	1.0	12.4
Chinese	95,600	0.6	10.1
Filipino	65,459	0.4	8.2
Indian	39,014	0.2	9.2
All others	20,723	0.1	
Total	15,717,204	99.9%	12.1 years

*U.S. Bureau of the Census, U.S. Census of the Population: 1960
**White persons of Spanish surname

A survey of secondary school students in Richmond, California, for example, shows large average differences in achievement between the ethnic groups represented. The orientals and the white "Anglos" perform above the average for the district; Mexican-Americans and Negroes far below average. The data are shown in Table 2, below.

Differences between ethnic and national groups in school achievement are confounded with differences in social class--occupation, income, status, and style of life. First and second generation immigrants from Europe before World War I--Irish, English, Italians, Poles, . . . --were among the "laggards in our schools"[2]

[2]Ayers, op. cit., p. 107.

TABLE 2.--Percentage distribution of Differential Aptitude Test scores in verbal ability by ethnicity; Richmond secondary school students, 1965*

Ethnicity	Number of cases		Raw test score distribution			
	Sample	Population	00-09	10-19	20+	Total
Negro	657	2,792	62%	30%	8%	100%
Mexican-American	66	557	38	49	13	100
White "Anglo"	1,126	10,661	19	40	41	100
Oriental	41	471	14	45	41	100
Total	4,077	14,481	25%	39%	37%	100%

*Unpublished survey data. The large advantage of Mexican-Americans over Negroes shown in these data from a Northern California community does not reflect statewide or national patterns.

whose educational attainments and measured mental abilities were below the average of native-born "Anglos." As these groups have acquired parity of social status, the levels of achievement of their children in school has come to approximate that of the "Anglos."[3]

While <u>disproportionate</u> numbers of minority groups have low socioeconomic status, in absolute frequency "Anglos" outnumber ethnic minorities among the poor--and their children outnumber those of minority group origin among low achievers. In Table 2, above, for example, while sixty-two per cent of the Negro students had verbal reasoning test scores in the lowest category--between zero and nine--they are a minority of the students in that category. Over half of the students with scores below ten are white "Anglos." While members of visible ethnic minorities have especially intensive

[3]Otto Klineberg, "A Science of National Character," <u>Journal of Social Psychology</u>, XIX (1944), 147-62.

problems stemming from prejudice, discrimination, and denigration,[4] they share with poor whites many of the environmental deprivations associated with poor scholastic achievement.

Although there is no question that there are substantial differences in educational achievement between social groups, the ambiguity of terms such as "deprived" and "disadvantaged" stems from a lack of concensus on the extent to which differences stem from environmental circumstance and the proper meaning of "equality of educational opportunity."

Most behavioral scientists would agree today that we have no way of directly measuring genetic endowments, of attributing the measured attainments of an individual proportionately to heredity or environment, or of estimating ceilings to potential.[5] From a policy point of view, however, the knowlege that deliberate training[6] or changes in social circumstance[7] can lead to variations of twenty

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[4]See, e.g., David P. Ausubel and Pearl Ausubel, "Ego Development among Segregated Negro Children," in A. Harry Passow, ed., Education in Depressed Areas (New York: Teachers' College, Columbia University, 1963), pp. 109-41.

[5]Good reviews of current thinking on this topic are found in G. A. Ferguson, "On Learning and Human Ability," Canadian Journal of Psychology, VIII (1954), 95-112; J. McV. Hunt, Intelligence and Experience (New York: Ronald Press, 1961).

[6]See, e.g., S. A. Kirk, Early Education of the Mentally Retarded (Urbana: University of Illinois Press, 1958); Ernest A. Haggard, "Social Status and Intelligence," Genetic Psychology Monographs, XLIX (1954), 141-86; UNESCO, Courier, III, No. 6-7 (1950); H. B. Boger, "An Experimental Study of Perceptual Training on Group IQ Scores of Elementary Pupils in Ungraded Schools," Journal of Educational Research, XLVI (1952), 43-53; Burton Blatt, Educating Intelligence (New York: John Wiley & Sons, 1965).

[7]Otto Klineberg, Negro Intelligence and Selective Migration (New York: Columbia University Press, 1955); Martin Deutsch and Bert Brown, "Social Influences in Negro-White Intelligence Differences," The Journal of Social Issues, XX (1964), 24-35; Kenneth Eells, et al., Intelligence and Cultural Differences (Chicago: University of Chicago Press, 1951).

to thirty points in IQ test scores (which, whatever they may measure, are highly predictive of academic success) suffices. This amounts to a difference between "dull normal" and "college potential" students. Since it has been fashionable in psychometry to seek "reliable" measures, experimentation in the modification of IQ scores has not been prolific.

TABLE 3.--Analysis of California Mental Maturity test scores by school, sex, race, and father's occupation; Berkeley high-sixth-grade students, 1959*

Source of variation	Sample number	Partial regression coefficient
School		
Segregated (white, middle-class)	263	+3.4
Integrated	155	-0.7
Segregated (Negro, working-class)	133	-5.9
Sex		
Boy	262	-0.3
Girl	289	+0.3
Race		
Negro	98	-7.4
Oriental	46	+4.1
White	407	+1.3
Father's Occupation		
Unskilled manual	89	-5.1
Skilled and semiskilled manual	156	-3.6
"White collar"	113	+2.8
Professional and executive	193	+3.7
Total sample mean	551	116.9
Squared multiple correlation		.31

*Unpublished survey data

Within the rather narrow range of environmental variation in learning experiences of high-sixth-grade students in the Berkeley

elementary schools, for example, we find that four crude social variables (actually three, since there are virtually no sex differences) account for thirty-one per cent of the variation in California Mental Maturity (IQ) test scores. Table 3, on page 6, above, is of further interest because it shows that the differences between schools in average IQ is not accounted for by the direct effects of race and familial social status.

On the other hand there is little concensus on the meaning of the phrase "equality of educational opportunity." The traditional liberal view of equality of opportunity which motivated the extension of public elementary and secondary education in this country would, as far as possible, remove legal and economic handicaps to the acquisition of education by intelligent and industrious youths whose parents sought their social advancement.[8]

The more radical conception calls for the provision of experiences which generate intelligence and arouse interest even where the influence of the home and neighborhood may be impoverished or hostile. This latter view that equality of opportunity requires the nurturance of talent against countervailing social forces--as opposed to the recognition and selection of talent which is revealed--is far from universal among school people and the general public.

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[8]Martin Trow applies this contrast between liberal and radical views of opportunity to a discussion of the education of the gifted and of the disadvantaged in "Two Problems in American Education," in Howard S. Becker, ed., Social Problems (New York: John Wiley & Sons, 1966). See, also, Merle Curti, The Social Ideas of American Educators (Paterson, N.J.: Littlefield, Adams & Co., 1961); Lawrence A. Cremin, The Transformation of the School (New York: Vintage Books, 1961), and The Genius of American Education (New York: Vintage Books, 1965); Rush Welter, Popular Education and Democratic Thought in America (New York: Columbia University Press, 1962).

The schism between "liberal" and "radical" views of opportunity underlie many of the basic policy issues in public education: the allocation of resources to accelerated or compensatory programs; the desirability and timing of grouping or tracking; the extension of public education into pre-school years and to parent education; the proper bases for grading; functions of counselling and guidance; . . . .

Identification of socially disadvantaged students

Conceptually a student can be defined as "socially disadvantaged" if his intellectual attainments are substantially less than they might otherwise be as a direct or indirect consequence of his ascribed position in the social structure. Learning behavior, however, is multiply determined, and our solid knowlege of the socio-cultural factors affecting learning is fragmentary and largely statistical.[9]

We know, for example, that lower-class children, on the average, achieve more poorly than do middle-class children in school, and we can identify numerous causal links which are associated with social class on the one hand, and with achievement on the other, which help us to interpret the relationship. One minor link,[10] for example, is that lower-class families have, on the average, more children, and the number of children in a family is inversely correlated with

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[9]While there is evidence that environmental variations have relatively little effect upon the intellectual development of privileged children, the multiple determination of cognitive growth leads to an infinite gradation. Drawing a sharp cutting-point and saying certain persons below that point are "disadvantaged" is arbitrary--like counting the "poor." Havighurst's suggestion of fifteen per cent of the child population--estimated from the proportion of unemployed, out-of-school youths--seems reasonable if a suggestive figure is needed. See Robert J. Havighurst, "Who Are the Socially Disadvantaged?" in Staten W. Webster, ed., The Disadvantaged Learner (San Francisco: Chandler Publishing Company, 1966), pp. 20-29.

[10]Some of the major connections will be spelled out in subsequent sections of this report.

achievement. This relationship, in turn, can be interpreted by the typical reduction in intensity and frequency of parent-child interactions in the larger family. Yet certainly not all lower-class families have large numbers of children, or middle-class families have few; nor do all children with many siblings do poorly in school.

As a consequence of this partial knowlege, or indeterminacy of behavior, in practice the clinical identification of an individual student as "disadvantaged" is commonly a retrospective fallacy. If a child who is achieving poorly in school comes from a lower-class family, belongs to a minority group, lives in an urban ghetto or a migrant farm community, he is regarded as "disadvantaged." The *rarer child from an overtly similar environment who does well in* school is not so labelled.

Differential diagnosis of retardation

Retardation stemming from social sources, at least in principle, can and must be clearly distinguished from what we will here refer to as "primary retardation." Primary and social retardation are not at all mutually exclusive: one may exist without the other, or they may exist in independently varying degrees simultaneously. There is substantial evidence of some degree of correlation, albeit quite low, between primary and social retardation in the total population.[11]

Primary retardation can be subdivided into three main types, all having an essentially biological causation. (1) It is an inevitable consequence of what is called by geneticists the multifactorial or polygenic inheritance of intelligence; (2) it is a

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[11] C. Burt and Margaret Howard, "The Multifactorial Theory of Inheritance and Its Application to Intelligence," British Journal of Statistical Psychology, IX (1956), 95-131; Leona E. Tyler, The Psychology of Human Differences (New York: Appleton-Century-Crofts, 1965).

result of a single major gene defect; and (3) it is a result of brain damage of one kind or another.

Polygenic inheritance.--Intelligence is inherited in much the same fashion as height. It is the result of a large number of genes each having a small additive effect. Because of random assortment of these genes, the total additive effect will be normally distributed in the population. Thus the hereditary mechanism--in effect a random lottery--that results in one person's being bright results in another's being dull, and the person who is dull or mentally retarded for this reason is, biologically speaking, no more abnormal or pathological than the average or bright person, or the short or tall person. He is simply a part of normal variation.

The great misfortune of socially disadvantaged children is that many are treated educationally (and they perform, accordingly) as if they were at the lower end of the genetic distribution of intelligence, when in fact they may be in the middle or even at the upper end of the distribution. Failure to distinguish between hereditary and social sources of retardation, as well as being an injustice, results in a waste of educational potential and talent. The consequences are especially damaging to the social progress of minority groups, and the costs are borne by our whole society. Distinguishing between social and genetic retardation is a difficult diagnostic problem among the disadvantaged. This diagnostic problem does not arise among privileged children, with rare exception, since severe retardation in this group is almost always of the primary type.

Major gene defect.--Practically all forms of mental deficiency where tested IQ scores are below 50 are the results either of severe

brain damage or of major gene defects.[12] Examples of major gene defects are Mongolism, phenylketonuria, and amaurotic idiocy. Genetically these intellectual defects are analogous to dwarfism in the trait of stature. They are caused by Mendelian inheritance of a single gene or by a mutant gene, which for all practical purposes may be regarded as completely overriding the normal polygenic determinants of intelligence. The resulting severe degree of mental defect, which is generally easy to diagnose in the first days or weeks of life, is not of concern in the present discussion, except to distinguish it from retardation which constitutes a part of normal variation.

Brain damage.--Brain damage, especially prenatal and perinatal, is a continuous variable. That is, its effects can range from the negligible to the disastrous, and the effects can be manifest at all levels of genetic potential. Thus a child who suffers an abnormal degree of anoxia at birth who would otherwise have grown up to have an adult IQ of, say, 150 may, as a result of the brain damage incurred by anoxia, have an actual IQ of 140. The literature on the subject suggests that brain damage, to a degree that makes a difference in measurable mental ability, is sufficiently rare that it does not constitute an appreciable source of variance in intellectual ability in the population as a whole. An upper-limit estimate would be about five per cent of the total variance of measured intelligence, which means that, on the average, brain damage lowers the IQ only slightly more than three IQ points. There is also evidence that brain damage has a higher incidence in lower socioeconomic groups for whom the

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[12] N. R. Ellis, ed., Handbook of Mental Deficiency (New York: McGraw-Hill Book Company, 1963).

mother's nutrition, prenatal care, and obstetrical practices are substandard.[13] All possible efforts should, of course, be made to minimize these conditions in order to decrease the chances of brain damage. This ameliorative effort should prove to be considerably easier than most of the measures that will be needed to combat the causal agents of social retardation.

All three types of primary retardation have three major effects in common: they result in below-average measured intelligence (IQ), in below-average educability in school subjects, and in a slow rate of what we shall refer to as "basic learning ability." Retardation stemming from social sources, on the other hand, is distinguishable from primary retardation, at least in principle, on this third factor--basic learning ability. While social disadvantage results in lowered IQ and lowered school achievement, it does not, except in extreme rare cases, result in lowered basic learning ability. This is a theoretically and practically important distinction, because it means that in trying to improve the educability of disadvantaged children we are not trying to make over genetically poor material, but are trying to allow sound innate learning potential to manifest itself in our educational system. But now, to further develop this topic, we must clarify the special meanings given to the terms "intelligence," "basic learning ability," and "educability."

Intelligence, learning ability, and educability

Standard intelligence tests, such as the Stanford-Binet and Wechsler, are measures of specific knowlege and problem-solving skills

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[13] Sonia F. Osler and R. E. Cooke, The Biosocial Basis of Mental Retardation (Baltimore: The Johns Hopkins Press, 1965).

which have been acquired by the testee at some time prior to the test situation. Mental Age is determined directly from the amount of such knowlege and skill. By taking into account the amount of time the individual has had to acquire this knowlege, that is, his chronological age, we obtain a measure of the rate at which he has learned, which is expressed as the IQ score.

The validity of the IQ test score as a measure of learning ability, therefore, depends to a large extent upon equal exposure to and practice with the kinds of knowlege and skills that the test calls upon. Since intelligence tests were originally devised to predict school performance, they call upon those kinds of knowlege and cognitive skills which are similar to the kinds of learning that are required in school, skills which are more or less prerequisite for school learning and which have considerable transfer value in the classroom.

Now, if IQ is a measure of the rate at which an individual has learned certain facts and skills, we should expect that rates of learning to perform tasks of the type used by experimental psychologists for the study of learning should show substantial positive correlations with IQ. This, in fact, is exactly what has been found.[14] But there is an important exception. The correlation between IQ and learning ability as measured directly in a controlled laboratory learning task is much higher among middle-class children than among lower-class children.[15] This means that the IQ is a good

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[14] E.g., A. R. Jensen, "Rote Learning in Retarded Adults and Normal Children," American Journal of Mental Deficiency, LXIX (1965), 828-34.

[15] A. R. Jensen, "Learning Abilities in Mexican-American and Anglo-American Children," California Journal of Educational Research, XII (1961), 147-59, "Learning Abilities in Retarded, Average, and

measure of learning ability in middle-class children but not in lower-class children. Another important aspect of this finding is that the correlation between learning ability (as measured in a standard learning task) and IQ breaks down in the below-average range of IQ--especially in the 60 to 85 IQ range. The correlations between learning ability and IQ in the above-average IQ range do not appear to be appreciably different among lower-class and middle-class children.[16]

Furthermore, in comparing level of performance--speed of learning--as a function of IQ level and of social class, it has been found in several studies that lower-class children with low IQs between 60 and 85 are, on the average, markedly superior in learning ability to middle-class children with low IQ scores. In the range above 100, on the other hand, there are not significant differences in learning ability between lower- and middle-class children with similar IQ scores. This suggests that once the IQ has exceeded a certain level--somewhere in the neighborhood of 100 to 110--it gives a fairly accurate assessment of learning ability regardless of social-class level. In the lower IQ range (which, incidentally, contains the modal performance of lower-class children) the IQ test grossly underestimates learning ability among lower-class children.

We are speaking here, of course, of averages. A certain proportion of lower-class children with low IQ scores are slow learners in the laboratory tasks just as are middle-class children with low IQ scores. The middle-class low-IQ groups seem to be made up almost completely of slow learners. But the lower-class low-IQ

Gifted Children," Merrill-Palmer Quarterly, IX (1963), 123-40, reprinted in John P. DeCecco, ed., Educational Technology: Readings in Programmed Instruction (New York: Holt, Rinehart and Winston, 1964); Jacqueline L. Rapier, "The Learning Abilities of Normal and Retarded Children as a Function of Social Class" (unpublished doctoral dissertation, University of California, 1966).

group contains all levels of learning ability. The probability of finding a very fast learner, with a learning speed comparable to that of "gifted" middle-class children, seems to be greater in the lower socioeconomic group with low IQ test scores than in the average range of either social-class group. This suggests that the IQ is almost totally unpredictive of learning ability in the low-IQ range for lower-class children.

It should be noted that the majority of lower-class children are in the below-average IQ range. This is especially true for Negroes. On a national average only about 25 per cent of Negroes exceed the median IQ of the white population.[17]

In view of what has been said above, it might seem puzzling why the IQ is substantially correlated--between .50 and .70--with school achievement regardless of social class. Ability for school learning may be referred to as educability. Educability is much more complexly determined than either intelligence or learning ability. For one thing, it depends not only upon learning ability of the type measured in the laboratory, in which transfer from prior learning is relatively unimportant, but also upon a fund of prior knowlege, skills, and acquired cognitive habits, much of which is tapped by intelligence tests. But educability also involves much more than these intellectual abilities, as indicated by the fact that intelligence tests do not account for much more than 50 per cent of the

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[16] Ibid.

[17] F. C. J. McGurk, "A Scientist's Report on Race Differences," U.S. News & World Report (September 21, 1956), reprinted in H. H. Humphrey, ed., School Desegregation: Documents and Commentaries (New York: Thomas Y. Crowell, 1964); Leona E. Tyler, op. cit.

variance in school achievement. A host of other factors must be taken into account to "explain" the remaining variance. These are usually described under labels such as attitudes, motivation, work habits, regularity of school attendance, docility, parental interest and help in school work, and so on.

Environmental influences on intelligence and educability

In recent years there has been a shifting trend of emphasis on the part of behavioral scientists working in this area. The trend has been away from the rather crude socioeconomic variables toward more subtle intrafamily and interpersonal variables. This shift in emphasis is given cogency by the fact that socioeconomic variables, such as income, occupation, neighborhood, and the like, do not correlate as highly with intelligence and educability as do variables measuring interpersonal behavior patterns which more directly relate to the development of intelligence such as whether the parents read to the children during the pre-school years, whether the family eats together, whether children are brought into the conversation at the dinner table, and other features of parent-child interaction--especially those involving verbal behavior. The usual socioeconomic variables that have been found to correlate with IQ and educability have shown correlations in the range from .30 to .50. At most only about 30 per cent of the variance in intelligence can be predicted from a composite of various indices of status. (See, for example, Table 3, on page 6, above.)

What are some of the environmental variables most highly associated with intelligence? Wolf[18] found that ratings of thirteen

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[18]Cited in B. Bloom, Stability and Change in Human Characteristics (New York: John Wiley & Sons, 1964), pp. 78-79.

process variables that describe interactions between parents and children would yield a multiple correlation with intelligence of .76. These variables may be classified as follows.

A. Press for achievement motivation
   1. Nature of intellectual expectations for child
   2. Nature of intellectual aspirations for child
   3. Amount of information about child's intellectual development
   4. Nature of rewards for intellectual development

B. Press for language development
   5. Emphasis on use of language in a variety of situations
   6. Opportunities provided for enlarging vocabulary
   7. Emphasis on correctness of usage
   8. Quality of language models available

C. Provision for general learning
   9. Opportunities provided for learning in the home
   10. Opportunities provided for learning outside the home (excluding school)
   11. Availability of learning supplies
   12. Availability of books (including reference works), periodicals, and library facilities
   13. Nature and amount of assistance provided to facilitate learning in a variety of situations

What presently are thought to be the most crucial psychological deficiencies of disadvantaged children can be grouped into three main categories: perceptual and attentional abilities, verbal and cognitive abilities, and motivational factors. A knowlege of the exact nature and etiology of deficiencies in these areas is, of course, highly germane to methods of prevention and remediation.

We have not mentioned motor abilities in connection with the disadvantaged, but because of current practices in some school programs for the socially disadvantaged, the topic deserves a few words. Retarded motor development, poor muscular coordination, balance, and the like, are known to be characteristic of mental retardation of the primary type--particularly in retardation associated with brain damage. There is no evidence, in fact there is

evidence to the contrary, that disadvantaged children are retarded in motor development or are in any way deficient in this sphere.

Yet in some kindergartens and primary grades we find disadvantaged children being required to engage in various tasks intended to develop or improve motor coordination, such as "rail walking"--balancing on the narrow edge of a two-by-four. Though such exercises have been found helpful for primary retardates, there is no reason to believe they are anything but a waste of school time for disadvantaged children, unless these children also show definite signs of primary retardation.

Perceptual abilities--From the rather meager research now available, it appears that low-SES children come to kindergarten or first grade with less well developed visual and auditory discrimination abilities.[19] The deficiency is not great in an absolute sense, but it is generally thought to hinder learning to read. Exercises in perceptual skills have been developed which apparently overcome these perceptual deficiencies fairly readily.

Since ability to discriminate differences among shapes and sounds are important prerequisite skills to school learning, it is recommended that these abilities be assessed in pre-school and be compared with middle-class norms, and appropriate remedial training be applied where deficiencies exist. Special tests, norms, and remedial techniques have still to be developed for this purpose, though some techniques already have been developed for experimental use.

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[19]Jensen, A. R., "Social Class and Perceptual Learning," Mental Hygiene, 1966, 50, 226-239.

Attentional ability--To anyone who has observed disadvantaged children in the classroom, particularly in the primary grades, one of the most outstanding behavioral characteristics is these children's failure to sustain attention. This is not so conspicuous in kindergarten but becomes clearly manifest in the first grade as soon as reading is introduced and other structured cognitive demands are made upon the child. Attentional ability is acquired and reinforced in infancy and early childhood. It develops differentially in various kinds of situations and is reinforced through the parentechild relationship. Typically, among disadvantaged children, attention is poorly developed with respect to adult speech and whatever things the adult tries to make the focus of the child's attention. These particular attentional abilities are developed in middle-class children from an early age, probably through certain features of the parent-child relationship (reading to the child, mutual play accompanied by relevant speech, etc.) which are relatively lacking in lower-class parent-child relationships.

These activities are mutually reinforcing to the parent and child: attentional behavior on the child's part reinforces the parent's interaction with him, and the parent's interaction with the child further reinforces and shapes the child's attention. It so happens that this shaping of attention in middle-class children is probably not only greater in sheer amount than in lower-class children, but is developed in relation to activities that more nearly resemble those of the school and of the pupil-teacher relationship.

Thus, attention is less well developed in the low-SES child at the time he enters school. But, in addition, a secondary phenomenon takes place: there is an actual deterioration of the child's attentional

ability, usually beginning in the first grade. Some children begin actively to resist focusing attention on teacher-oriented tasks and activities. Normal attentional behavior gives way to a kind of seemingly aimless and disruptive hyperactivity. This is an almost universal observation by teachers of the disadvantaged (especially disadvantaged Negro children).

This suggests the possibility that the gap in difficulty between the tasks required of the disadvantaged child in the kindergarten and those encountered in the first grade might be too great in most schools. If the child cannot meet the tasks set by the teacher with successful performance (not merely receiving indiscriminate approval by the teacher for any quality of performance), the child gradually develops aversion to the school-learning situation. His attention is, as teachers are heard to say, "turned off," and distractibility and aimless hyperactivity ensue. The gap between preschool or kindergarten and first or second grade is not now being bridged satisfactorily for the socially disadvantaged child. The steps in the learning requirements are too big. For the middle-class child the transition from home to school is clearly a much less radical change from the activities and demands of the home than for the disadvantaged child.

Language Deficiencies--By far the greatest and most handicapping deficiencies of the disadvantaged child are found in the realm of language. But the term language is here used in a much broader and psychologically more profound sense than is generally appreciated by teachers of English, speech therapists, and the like. The immediately obvious aspects of the language of the disadvantaged--the lack of genteel English, incorrect grammar, poor pronunciation, use of slang, etc.--are

psychologically the most superficial and the least important from the standpoint of intellectual development. This is not to minimize the social, economic, and occupational advantages of good oral and written English. It is simply important to realize that the language deficiencies of lower-class children psychologically have a much more detrimental effect than the obvious social disadvantages of their language habits. Because the eschewal of certain lower-class language habits by the middle-class is perceived by some persons as undemocratic snobbery, there has grown up another utterly erroneous notion to the effect that lower-class language is "just as good as" any other kind of language, in the same sense that English, French, and German, though obviously different from one another, are similarly adequate for the expression of meaning. Thus, social class differences in language habits are viewed as desirable or undesirable only according to one's acquired tastes, values, and standards, and--to paraphrase the argument--who is to say that middle-class values are any better than lower-class values? This line of thinking can be quite discredited in terms of our growing understanding of the functions of language. Language serves not only a social function as a means of interpersonal communication, but it is also of crucial importance as a tool of thought. It is in this latter function that lower-class language deficiencies are most crippling psychologically.

General Language Characteristics

With respect to language functions, Metfessel has listed the following general characteristics of culturally disadvantaged children:[20]

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[20]Frost, J. L. and Hawkes, G. R., The Disadvantaged Child (New York: Houghton Mifflin Company, 1966), p. 46.

1. Disadvantaged children understand more language than they use. Even so, by second grade the comprehension vocabulary of such children is only approximately one-third that of the average for their age cohort. By sixth grade it is about one-half.

2. Disadvantaged children can use a great many words with fair precision, but not the same selection of words commonly used in school. It has been estimated that something less than half the words known by middle-class preschoolers are known to slum children. Even such common name words as sink, chimney, honey, beef, and sandwich are learned by disadvantaged children one or two years later than by other children.

3. Disadvantaged children frequently are handicapped in language development because they do not have the concept that objects have names and that the same objects may have different names.

4. Disadvantaged kindergarten children use fewer words with less variety to express themselves than do kindergarten children of higher socioeconomic status.

5. Disadvantaged children use a smaller proportion of mature sentence structures, such as compound, complex, and more elaborate constructions. This is not limited to the non-English-speaking child, but occurs among most children who come from a disadvantaged background.

6. Disadvantaged children learn less from what they hear than do middle-class children. Part of this deficiency has been attributed to the fact that disadvantaged children come from a milieu in which radio, television, and the sounds of many people living together in crowded quarters create a high noise level which the child eventually learns to shut out, so that verbal stimuli generally become less salient.

7. Disadvantaged children are less likely to perceive the symbolic and conceptual aspects of their environment; the verbal means of abstraction and analysis are relatively undeveloped.

8. Disadvantaged children frequently end the reading habit before it is begun. The cycle of mastery which demands that successful experiences generate more motivation to read which in turn generates higher levels of skill sufficient to prevent discouragement, and so on, often never gets underway. These children, of course, have poor adult models for reading behavior.

In general, it has been found that throughout the entire sequence of language development, from the earliest stages of speech in the first two years of life, there is retardation among disadvantaged children. Furthermore, this retardation should not be thought of entirely as a

matter of the child's merely lagging behind the middle-class child, with the same level of development merely being attained somewhat later. The characteristics of the language habits that are being acquired and the kinds of functions the language serves in the child's experience actually shape his intellectual development, especially the development of the ability for abstraction and conceptual learning. Poor development of these abilities places a low ceiling on educational attainment.

The most detailed analysis of social-class differences in language characteristics which are important to the development of cognitive abilities has been made by Basil Bernstein in England.[21] Except for minor details, his findings and conclusions seem to be applicable to social-class differences in the American cultures as well as in the British. If anything, social-class differences in language behavior of the type that concerns Bernstein are probably even more pronounced here than in England. It is important, however, that Bernstein's type of sociolinguistic analysis be applied to some of the various American low-SES subcultural groups.

In characterizing social-class differences in language behavior, Bernstein distinguishes two main forms of language, which he refers to as public and formal. A formal language is one in which the formal possibilities and syntax are much less predictable for any one individual, and the possibilities for sentence organizations used to clarify meaning and make it explicit are finely variegated. In public language, on the other hand, the speaker operates in a mode in which individual selection

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[21] Bernstein, B., "Social Structure, Language and Learning," Educ. Res., 1961, 3, 163-176.

and permutation are grossly restricted. In formal language the speaker can make highly individual selection and permutation. Formal language, therefore, can fit the speaker's purposes with much greater subtlety and precision and does not depend to any marked degree upon inflection, gestures, facial expressions, and a presupposed prior mutual understanding of the main gist of the communication, as expressed in the highly frequent use of the phrase "you know what I mean" in lower-class speech.

While middle-class persons can understand and use public language as well as formal language, lower-class persons are more or less restricted to public language. Public language is almost completely limited to the single function of social intercourse within a community of tacit common understandings and values. It is not designed for expository functions, for detailed representation of past events or future plans, or for manipulating aspects of one's experience abstractly and symbolically. In public language, the quantity of speech is not reduced, but the variety of functions which speech can serve is limited. This becomes especially important in the realm of private or internal speech, where the person must use language to recall, review, structure, or otherwise mentally manipulate his past or his anticipated experiences, aims, plans, problems, and so on. Bernstein lists the following characteristics of public language:

1. Short, grammatically simple, often unfinished sentences with a poor syntactical form stressing the active voice.
2. Simple and repetitive use of conjunctives (so, then, because).
3. Little use of subordinate clauses to break down the initial categories of the dominant subject.
4. Inability to hold a formal subject through a speech sequence; thus, a dislocated informational content is facilitiated.

5. Rigid and limited use of adjectives and adverbs.

6. Infrequent use of impersonal pronouns as subjects of conditional clauses.

7. Frequent use of statements where the reason and conclusion are founded to produce a categoric statement.

8. A large number of statements/phrases which signal a requirement for the previous speech sequence to be reinforced: "Wouldn't it? You see? You know?" etc. This process is termed 'sympathetic circularity.'

9. Individual selection from a group of idiomatic phrases or sequences will frequently occur.

10. The individual qualification is implicit in the sentence organization: it is a language of implicit meaning.

In contrast, the following are characteristics of formal language:

1. Accurate grammatical order and syntax regulate what is said.

2. Logical modifications and stress are mediated through a grammatically complex sentence construction, especially through the use of a range of conjunctions and subordinate clauses.

3. Frequent use of prepositions which indicate logical relationships as well as prepositions which indicate temporal and spatial contiguity.

4. Frequent use of the personal pronoun 'I'.

5. A discriminative selection from a range of adjectives and adverbs.

6. Individual qualification is verbally mediated through the structure and relationships within and between sentences.

7. Expressive symbolism discriminates between meanings within speech sequences rather than reinforcing dominant words or phrases, or accompanying the sequence in a diffuse, generalized manner.

8. It is a language use which points to the possibilities inherent in a complex conceptual hierarchy for the organizing of experience.

Robert Hess, of the University of Chicago, has found considerable evidence of these two modes of language behavior in the parent-child interactions of lower-class and middle-class Americans observed in

situations in which the mother is required to instruct her child in learning a simple task.[22] The language of the lower-class mother does not provide the child with cues and aids to learning to the same extent as the language of the middle-class mother. Since children tend largely to internalize the language of their home environment, mainly that of the parents, the low-SES child acquires an inferior set of verbal techniques which he can apply on his own in learning and problem-solving situations.

Verbal Mediation of Cognitive Functions

From the standpoint of the development of intelligence, the most important aspect of language is its relationship to a variety of processes listed under the general heading of verbal mediation.[23]

One of the crucial psychological differences between low-SES and middle-SES children is in the spontaneity of verbal mediation, especially in ostensibly non-verbal learning or problem-solving situations.[24] Low-SES children are much less likely than middle-SES children to talk to themselves as an aid to "thinking." On ostensibly nonverbal tests and learning tasks which nevertheless require private verbal mediation, disadvantaged children perform especially poorly. This is the main reason that so-called nonverbal intelligence tests are not by any means "culture free" or "culture fair."

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[22] Hess, R. D., Shipman, V. "Early Blocks to Children's Learning," Children, 1965, 12, 189-194.

[23] Jensen, A. R., "Verbal Mediation and Educational Potential," Psychol. in the Schools, 1966, 3, 99-109.

[24] Jensen, A. R., Social Class and Verbal Learning. In M. Deutsch, A. R. Jensen & I. Katz (Eds.) Social Class, Race, and psychological Development, (New York: Holt, Rinehart, & Winston, in press).

Several main processes of verbal mediation, that is, covert language, can be identified.

Labeling--In middle-class children the habit of labeling or naming objects and events in the environment becomes automatic and unconscious. It is practically impossible to look at, say, a chair or a book, or any object, without these stimuli eliciting a verbal (usually covert) response of naming. Perception and verbalization are more or less unified, so that one cannot see a chair without thinking "chair," at least when the chair is the focus of one's attention. At first, in very young children, this naming tendency is overt; it gradually becomes covert. Most middle-class children enter school with this particular form of verbal equipment already fairly well developed.

Lower-class children do not. Apparently the conditions under which the lower-class child spends his pre-school years are insufficient to instill the habit of naming or labeling, especially in contrast to the milieu of the middle-class child where the verbal identification of objects and events is commonplace. Experimental evidence has shown conclusively that verbal labeling greatly facilitates learning, retention, and problem solving. Furthermore, this type of verbal mediation is learned in a particular environment; it is not an innate aspect of learning ability. It is a form of behavior which must become habitual and automatic in children if they are to develop their educational potential.

The Associative Network--Words in context acquire associations. These verbal associations have other associations, and so on, to form an elaborate, ramifying verbal associative network. This network is thought to act, more or less automatically and unconsciously, as a broad source of transfer for learning and retention of a conceptual nature. It is the

psychological background or "net" which enmeshes the child's experiences in the classroom. Word association experiments on children indicate that lower-class children have a more sparse, less rich associative network. Even the words they know and use have, in this sense, less associative meaning to them, and the associations are not as structured in terms of hierarchical characteristics that facilitate categorization, conceptual analysis, and the like. The quality of the child's verbal environment is the chief determinant of the richness and structure of his associative network. All children who can speak have an associative network, but the network of associations of disadvantaged children is more like that of middle-class children who are two or three years younger.[25]

Abstraction and Categorization--Conceptual learning, which is entailed in many school tasks, requires the ability to abstract, and to categorize things in terms of various abstracted qualities. For example, plates, wheels, doughnuts, and pennies, have in common the abstract property of being round. Young middle-class children, and somewhat older disadvantaged children, are not likely to perceive anything in common among these disparate objects. The objects do not arouse abstract associations, and consequently the number of ways the objects can be grouped will be limited or will be entirely idiosyncratic, depending upon the child's particular experience with the objects--such as the fact that his mother may have served him doughnuts on a plate. The ability to disassemble what is registered by the senses into various conceptual attributes is an important ingredient of educability, and it is greatly facilitated by, if not wholely dependent upon, verbal behavior, either overt or covert.

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[25] Entwisle, Doris, R., Word Associations of Young Children, (Baltimore: The Johns Hopkins Press, 1966).

Syntactical Mnemonic elaboration--The ability to respond to one's experiences on the verbal level in a way that makes use of the structuring ordering properties inherent in the syntactical aspects of language greatly facilitates learning, comprehension, retention, and retrieval of, and reasoning involving, various kinds of experience, both verbal and non-verbal. Language imposes its structure upon raw experience, and structures and organizes it in ways that the subject is able to recall for use at a later time. This ability is limited for the person who either has not acquired or does not habitually use the logical and structural properties contained in formal language.

Patterns of Academic Development

When we step back from the detailed examination of the intrafamilial sources of early differentiation in intelligence and educability to look at the general social patterns of academic development in the population, an interesting relationship emerges. From the time of entry into the first grade through the senior high school years the measured verbal achievement level of major disadvantaged minority groups--Negroes and Mexican-American--are approximately one standard deviation behind their white compeers.[26] That is, at each grade level the average verbal achievement score for Mexican-Americans and Negroes is equivalent to about the fifteenth percentile for white students.

Since the achievement of students becomes more and more spread out as they progress through the grades, the 15th percentile is $1\frac{1}{2}$ years behind the average of grade six, $2\frac{1}{4}$ years behind the average in grade

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[26]The most comprehensive recent survey of achievement is that conducted by the U.S. Office of Education in 1966. See James S. Coleman, et al., Equality of Educational Opportunity (Washington, U.S. Govt. PO, 1966), pp. 220-75, and Supplemental Appendix to the Survey on Equality of Educational Opportunity, passim.

nine, and $3\frac{1}{4}$ years behind the average in grade twelve. Thus the majority of minority group children, together with disproportionate numbers of lower-class white children, fall farther and farther behind their schoolmates as they progress through their school years.[27]

The contrast between the achievement levels of members of different social classes--indicated by fathers' occupations--are as sharp as the contrast between the average achievement of whites and Negroes. Looking at data from the Richmond schools, again, in Table 4, we see that the difference in mean verbal reasoning test scores between Negroes and whites is 31 percentile points (just one standard deviation), while the difference in mean scores between the children of professionals and managers on the one hand and that of the children of unskilled laborers and the unemployed is 32 percentile points.

TABLE 4--Mean eighth Differential Aptitude Test percentile scores in verbal ability by race and father's occupation; Richmond secondary school students, 1965*

Source of Variation	Number of Cases		Mean
	Sample	Population	
Race			
Negro	1,723	3,211	25.5
White	2,031	11,830	56.6
Father's Occupation			
Professional & Managerial	504	2,652	68.2
White Collar	902	3,977	53.6
Semi and Skilled Labor	958	4,290	49.9
Unskilled and Unemployed	1,271	4,070	35.7
Total	3,966	16,202	49.5

*Unpublished survey data.

[27] If adjustments were made for school drop-outs the spread would become even greater from the 9th through 12th grade.

While race and occupational status are confounded--a disproportionate number of Negroes being unskilled laborers and unemployed--analyses of variance such as the one shown in Table 3 show that the independent effects of each classification are about equal.

Effects of schools on achievement

While it should be clear from the foregoing discussion that there are substantial differences in "educability" between children which stem from social disadvantages before they enter the public school system, the effects of schools in ameliorating or exacerbating these differences is important for educational planning. Of particular relevance is an examination of the kinds of investments and curricular practice which seem to make a substantial difference to levels of academic achievement.

The educational literature is replete with correlations which suggest the returns accruing from various investments. For example, the higher the expenditure per student, or the larger the school library, the larger the proportion of students who will attend college. While this is an eminently reasonable supposition on its face, the association is quite possibly spurious. Investments are higher in metropolitan areas and in middle-class suburbs where strong expectations for college matriculation are prevalent.

A massive study has recently been completed by the U.S. Office of Education[28] based upon a national probability sample of over half a million students in three thousand schools. This study is particularly remarkable for the number of school characteristics and practices which were not

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[28] Coleman, op. cit.

found to have any appreciable effect upon the achievement of students when controlling for selected personal background characteristics of students.

The following list of school practices and characteristics had a combined effect accounting for only about 1% of the variation in achievement of sixth and ninth grade Negro and white students; 2% of variation of achievement of twelfth grade white students, and 3% of the variation in achievement of twelfth grade Negro students:

Per pupil instructional expenditures
Number of volumes per student in school library
Presence of science laboratory facilities
Number of extracurricular activities
Presenve of accelerated curriculum
Comprehensiveness of the curriculum
Practice in promotion of slow learners
Grouping or tracking practice
Ease of movement between tracks
School size
Number of guidance counsellors
Urbanism of school's location

Other school characteristics which were investigated, but did not show any perceptible relationship to achievement were teacher/pupil ratios, the number of specialized rooms in the plant, the availability of separate classes for special students, and the age of textbooks.

While a survey such as this is not able to assess qualitative distinctions in the way in which the investments, services, and facilities which are provided are actually used in individual schools, the fact that their provision has virtually no effect on measured outcomes is not heartening. It is particularly relevant to the present concern since so many of the special compensatory and enrichment programs which the federal

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[29] Ibid., pp. 313-15. It is noted on pp. 529-45 that guidance counselors apparently created a better "fit" between students' achievement and college aspirations.

and state government are supporting are based on, or include, elements surveyed in this list without any specialized rationale or assurance of distinction.

Reducing class size, adding guidance counselors, introducing--or abolishing--tracking, creating specialized classrooms, adding extra-curricular activities, and enriching the library are readily administered "projects." Given the resources they can be realized. And since projects develop out of local initiative they may satisfy some "felt need." But the promise for affecting students' intellectual development is slight.

Organizational strategies and material facilities apparently make little difference to educational outcomes. The kinds of people in the school environment of a student have a considerable effect. The principal result, based upon a variety of analyses of the study of school-to-school differences in achievement at different grade levels in the U.S. Office of Education study was summarized by the authors as follows:[30]

"Attributes of other students account for far more variation in the achievement of minority group children than do any attributes of school facilities and slightly more than do attributes of staff."

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[30] Ibid., p. 302. See also, Alan B. Wilson, "Residential Segregation of Social Classes and Aspirations of High School Boys," American Sociological Review, XXXIV (December 1959), 836-45, and "Social Stratification and Academic Achievement," in Passow, ed., op. cit., pp. 217-35; John A. Michaels, "High School Climates and Plans for Entering College," Public Opinion Quarterly, XX (1961), 585-95; Ernest I. Campbell and C. Norman Alexander, "Structural Effects and Interpersonal Relationships," American Journal of Sociology, LXX, (November 1965), 284-89; William H. Sewell and J. Michael Armer, "Neighborhood Context and College Plans," American Sociological Review, XXXI (April, 1966), 159-68; Richard P. Boyle, "The Effect of the High School on Students Aspirations," American Journal of Sociology, LXXI (May 1966), 628-39; Ralph H. Turner, The Social Context of Ambition (San Francisco: Chandler Publishing Company, 1964); Sarane S. Babcock, "Toward a Sociology of Learning: A Selective Review of Existing Research," Sociology of Education, XXXIX (Winter, 1966), 1-45.

A recent study in a California community[31] extends this finding. Controlling not only variations in family background, parental supervision, number of siblings, and similar variables, but also allowing for differences in IQ test scores in the primary grades, the social-class characteristics of a students' school-mates make a substantial difference to his subsequent academic development. Significantly it is the social-class composition--not the racial composition--which makes the difference. Segregated Negro schools are always, of course, predominantly lower-class. But, lower-class all-white schools have similar adverse effects, while variations in the racial composition of schools having similar social-class composition have no perceptible effect. A clear policy implication of this finding is that designs to redress racial imbalance in schools must take account of the social-class composition of the schools if they are to be expected to affect the relevant educational milieu.

A second relevant finding reported in this research is that it is the social character of the school--not peers in the immediate neighborhood of the individual--who comprise the educationally relevant social environment. This suggests, contrary to many reservations, that alterations of school compositions may be effective even without prior or concommitant demographic changes in residential patterns.

The theoretical implications of the latter finding are perhaps more important than the direct policy implications. Most of the sociological discussion of effects of segregation have stressed the influence of the values of peers in molding individual orientations. The present finding suggests that it is not a direct communication which occurs in casual or

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[31] Alan B. Wilson, "Educational Consequences of Segregation in a California Community" (Berkeley: Survey Research Center, University of California, 1966, mimeographed).

recreational contexts, but rather affects through the definition of the school situation. The modal achievement level of students affects the academic standards expected by teachers and students, the pace of instruction, the proportion of class-time devoted to instruction as opposed to behavioral control, and morale.

This brings us to the second substantial school-to-school effect found in the U.S. Office of Education survey: the effect of staff characteristics upon student achievement. Students in schools where teachers have stronger educational backgrounds, and higher levels of verbal achievement themselves, benefit by this exposure. This is especially true of minority group children. (It is generally true that disadvantaged youths are more sensitive to extra-familial environmental influences, while middle-class children are not so strongly affected.)

At the same time it was found in this study, as in many other investigations,[32] that the teachers of disadvantaged youths, on the average, have poorer backgrounds than teachers of more privileged youths. Moreover, a supplementary survey of teachers-in-preparation showed that those future teachers who have the characteristics which disadvantaged youths might benefit from, tend to aspire to middle-class, college-preparatory academic track assignments.

A pattern of lateral occupational mobility obtains among teachers.[33] New inexperienced teachers in disproportionate numbers serve their apprenticeship in lower-class schools or in rural fringe areas. As they

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[32] Howard S. Becker, "Schools and Systems of Stratification," in A.H. Halsey, Jean Floud, and C. Arnold Anderson, eds., Education, Economy and Society (Glencoe, Ill: The Free Press, 1961), pp. 93-104; Robert E. Herriott and Nancy Hoyt St. John, Social Class and the Urban School (New York: John Wiley & Sons, 1966); Patricia Sexton, Education and Income (New York: Viking Press, 1961); Mel Ravitz, "The Role of the School in the Urban Setting," in A. Harry Passow, ed., op. cit., pp. 6-23.

[33] The impetus for discontent was described years ago by Willard Walker, Sociology of Teaching (New York: John Wiley & Sons, 1932). See also Becker, op. cit.

acquire experience and prove their competence they seek to move into more privileged communities. Despite programs over the past decade seeking to attract the best teachers to low-income area schools, the prevailing pattern is still that teachers of the poor are generally less well trained and less experienced and less happy with their position than teachers of the well-to-do.

Even though for many years teacher training institutions have taken a fairly uniform stance on the environmentalistic side of the old nature-nurture controversy, and almost all writers in the blossoming literature on the "culturally deprived" have done so, a firm part of the occupational ideology of practicing teachers is their ability--bolstered by tests--to derive native wit from student performance. These assessments are mirrored back to students. Irwin Katz,[34] for example, describes an experiment by Rosenthal in which teachers were given fictitious information about the intellectual potentialities of children whose measured intelligence was known to the experimenter. At the end of the school year, the IQ's of the children showed changes commensurate with the false information that had previously been given to the teacher.

The research literature on teacher characteristics conducive to "effective teaching" does not in general provide much useful information.[35] The attributes investigated are rarely based upon theoretical expectations, and the criteria for effectiveness are typically evaluation of performance by professional supervisors. This criterion would lead to a perpetuation of whatever might be generally deemed "good practice;" even if solid

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[34] Irwin Katz, "Research on Public School Desegregation," Integrated Education, IV (August-September, 1966), p. 24.

[35] See the extensive review by J. W. Getzels and P. W. Jackson, "The Teacher's Personality and Characteristics," in N. L. Gage, ed., Handbook of Research on Teaching (Chicago: Rand McNally, 1963), pp. 506-82.

relationships were forthcoming, they would provide an inappropriate basis for reform. We do know from the research cited above, however, that there is a negative selection of teachers to low-income schools. And, perhaps more serious, in a depressed milieu "good" students are defined by behavioral docility more than intellectual performance.

Educational Programs for Disadvantaged Youths

Before discussing individual programs a general caveat is in order. The vast majority of special programs which have been undertaken are not designed or conducted in such a way as to add to our knowledge of how to proceed. Even such well-noted programs as New York City's "Higher Horizons" (Demonstration Guidance Project), which provided well-documented short term gains, have such a diversity of uncontrolled "inputs" that the reasons for its successes are not isolable. A great many programs entailing massive broad-front intervention are "doomed to success" without providing direction for others.

The many projects funded under OEO and ESEA require "evaluation"--but a reading of hundreds of approved projects does not show that they typically require either careful design or even careful documentation of outcomes. The great majority of programs range in quality of assessment from a reported trip to the snow where the teacher found (apparently with surprise) that the children were well-behaved and enjoyed themselves, to, for example, one-to-one reading and homework tutorials using volunteers, reporting attendance data, case vignettes, and perhaps some criterion of achievement gain.

Most of the compensatory, remedial, and other supplementary programs for disadvantaged students have been organized and implemented hastily (often to take advantage of earmarked funds which would expire at an imminent deadline) without sufficient lead time for program development,

staff training, or collection of "base line" data. School people and others have relied largely on procedureswhich are already parts of standard practice, often given new labels in line with the ways the problems are viewed. (For example, providing services to poor students which are available in another part of town or in more favored districts.)

The main assumption of the majority of remedial and compensatory programs, is that the standard school program is basically sound and should remain essentially as it is for the foreseeable future. If this view were true, of course, evaluation could consist of description and documentation of extensions of standard service. But the fact is that there is little firm evidence--and a plethora of opinion--indicating and contra-indicating specific pedagogical techniques. Not only do we have little knowledge about the instructional procedures and arrangements most likely to prevent the failure of disadvantaged students; we do not thoroughly understand why it is that others succeed. We need to know much more than we do about the conditions of success[36]--both those conditions within the control of the schools, and those which are influenced mostly in other parts of the country. Even the best of the "compensatory" and "remedial" programs which have been produced represent largely good guesses and partially tested hypotheses as to what problems are involved and what the optimal solutions might be.

This state of affairs precludes the advancement of a comprehensive monistic prescription of "the ideal program." Rather we shall suggest

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[36]Robert M. Gagne, The Conditions of Learning (New York: Holt, Rinehart & Winston, 1965); A. Harry Passow and David L. Elliott, "The Disadvantaged in Depressed Areas." In The Educationally Retarded and Disadvantaged, 66th Yearbook, National Society for the Study of Education. Chicago: University of Chicago Press (in press, 1966).

strategies for increasing our understanding of the dimensions of effective instruction, suggest some priorities and guidelines based upon the foregoing review of social sources of educational disadvantage, and discuss a few of the most promising and relevant programs now operating in California and elsewhere.

Preschool Programs

In light of the overwhelming influence of the family in the development of linguistic and cognitive skills beginning in infancy, some commentary on preschool programs for disadvantaged children is relevant.

These programs are of three main types: (1) summer only programs, as is most typical with OEO sponsored Headstart; (2) school year length programs, as with the recently started A. B. 1331 programs for children of A.F.D.C. families, plus a few Headstart efforts; and (3) year-around Extended Day Care programs, which have been going for more than twenty years, are mostly custodial efforts and include children up to age twelve. All three can be run by either public or private agencies. It is the first two types that will be discussed here, although the third could easily be included in any planning for deliberate compensatory intervention.

The general pattern of both the first two types of programs is most easily described as that of a fairly standard nursery school with emphasis on group participation, social skills, interpersonal support, with the addition of some attention to language and cognitive development in addition to medical, dental, and nutritional care.

Students are usually brought to classrooms in groups of not more than twenty for five half-days per week (sometimes including breakfast or lunch). The staff that works with them includes a head teacher, an assistant teacher, and enough teacher aides (often parents or Job Corps youth) to bring the adult-child ratio to about one to five. Many programs are on double sessions so that the same staff (or at least the same teacher) meet two groups of children per day, leaving less time available for planning or for work with parents in the community.

Parent involvement varies from rather extensive participation in both the children's program and various kinds of related community action projects (e.g., 1965 "Equal Start" in Berkeley; Tic Toc Nursery in N. Richmond) to almost exclusive emphasis on the children in the classroom, sometimes coupled with minimal home visiting by teachers or neighborhood workers, or work in parent classes.

Staffs for preschool programs are recruited from a limited reservoir of women who have had some experience in nursey or elementary teaching (or coop nurseyy experience) and from local area residents who may serve as assistant teachers, aides, neighborhood workers, food preparers, etc.

The extent of staff training (and experience) varies widely. OEO sponsors both five-day and eight-week training programs in which it pays selected staff members to participate. Training for A.B. 1331 programs is left up to the sponsoring agency and usually takes the form of a limited amount of in-service training through staff meetings and on-the-job supervision. By and large this means that staff members do what they already best know how to do...which may or may not be relevant to compensatory instruction.

Headstart lists as its major instructional goals independence from home plus ability to get help from other adults, increased ability to live with others and to respect their rights, up-graded self-concept and estimate of self as learner, opportunities to succeed in school settings, development of language skills, enhanced curiosity, increased motor skills, creative expression, and better self-discipline including the channeling of aggression through socially acceptable means. (All typical "kindergarten readiness" goals with only one, perhaps two having direct bearing on compensatory interventions.)

A.B. 1331 gives as its aims a program to put children of low-income families in an "atmosphere of learning" in order to "improve their performance and increase their motivation and productivity when they enter school." The specifics of the program are left largely to be generated in the process of negotiating a contract between the State Department of Education and the local sponsoring agency.

The main problems with preschool compensatory education efforts center around the issue of deficiency (that is, real educational "disadvantage") vs. mere difference (i.e., at variance with "mainstream" middle class culture), and around the question of how to provide the kinds of interventions that may turn out to be important to overcoming deficiencies.

Even in the absence of needed long-range research, however, it seems clear that current efforts are far from adequate. Indeed, it even seems unprofessional to mislead the public into believing that such programs will (or can) clear up the problem of educational disadvantage--as Headstart does by direct promise and A.B. 1331 does by strong implication. We need to be much more modest in our claims--and to devote many resources to careful development activities as we go.

The most consistent positive statement that can be made about Headstart and other similar programs is that they seem to succeed in better preparing low SES children better to cope with the business of functioning easily in a school classroom setting. Children who have attended such programs turn out to be more vocal, more independent and sure of themselves than those who have not. Experience to date, however, has shown that any achievement advantages gained seem to disappear in the first year or two.[37] And, ironically, many kindergarten teachers have been known to complain that preschool graduates are too independent and harder for the teacher to fit into the well-controlled format of the usual kindergarten day.

There are also undoubtably a goodly number of children who are enormously aided by the preschool programs which they attend, just as there are many children who come from slum homes who do not fail in school (See Davidson & Greenberg, 1962, and Mackler, 1965).

Beyond this, there are some real weaknesses in the present programs. The most important of those can be summarized as follows:

1. By depending largely on previous training and experience of staff, and thus not going in any depth or with any consistency beyond good standard nursery school practice, compensatory preschool programs offer a "shotgun" approach where a rifle with a telescopic sight is clearly indicated. It is not attention to the "total" development of the "whole" child in a well-rounded program which is needed, but a program that puts emphasis on those particular aspects of development that can be identified as schooling-relevant deficiencies. The most

[37] Coleman, op. cit., pp. 491-523, reports very slight initial academic gains for Negroes, none for white students.

crucial areas of deficiency appear to be not in the area of the total amount of experience (as many enrichment programs assume), or even in perceptual development as such, but in cognitive development and in those aspects of language functioning that are most closely related. It is the interpretation of experience which leads to the building of necessary cognitive structures, and language is the main medium through which both thought and the instructional process are mediated. Deficiencies in perceptual skills, motor-manipulative ability (except where related to cognitive operations), and the use of non-standard English are less relevant to educational disadvantage.

2. Teachers who are asked to be generalists, in that they are expected to deal with all aspects of child development and learning, will tend to emphasize the areas of instruction in which they have the most training and experience. Even the best-rated nursery school teachers are usually inadequately prepared to provide real compensatory instruction without a good deal of outside help. Thus, although some teachers may already practice many of the interventions that are particularly appropriate for disadvantaged children, it is safe to say that such practice is neither sufficiently widespread nor applied consistently enough to be representative of common preschool practice. This is particularly true when a high percentage of local adults are hired as aides and assistant teachers.

3. The involvement of parents and other adults in the community is also spotty and inconsistent. Since it is a part of the larger Anti-poverty Program, programs under Headstart have been more often related to wider community efforts than the A.B. 1331 programs. Although participation in community action programs can have a salutory effect on both adults and children, it does not necessarily lead to the

upgrading of home settings for the enhancement of intellectual development or school achievement. For diffusion of truly compensatory measures to home settings, parent participation should be more specifically focused on relevant aspects of child rearing.

4. Most of the compensatory preschool programs include mainly, if not exclusively, the children of the poor. In addition to what might be gained from the point of view of integration and intergroup understanding, the presence of more "advantaged" middle classmates can add much to a classroom environment for cognitive and language development, since the specific "teaching of lessons" seems to be less important in many cases than the presence of "models." Beyond this, the (over) stress on the "changing of the lower class to fit the middle class image" seems to be full of a number of traps that are analogous to seeing the civil rights movement as one to help the Negro gain his constitutional rights rather than as an effort to promote a new birth of freedom for all Americans.

Some Alternatives

There are a number of programs in operation in various parts of the country which could serve as models for ways of eliminating the weaknesses of the large majority of present day preschool compensatory efforts. All of these programs are accompanied by careful research.

1. Academically-Oriented Preschool[38] --This is a program which consists of intensive 15-25 minute training sessions three times a morning for three months. Training interventions were derived on the basis of a

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[38] Carl Bereiter, "Academic Instruction and Preschool Children," in Language Programs for the Disadvantaged, National Council of Teachers of English, 1965, p. 193-203.

systematic analysis of the formal characteristics of the language used by the children (Englemann Cognitive Maturity Test and I.T.P.A.). The three sessions, with rest and recreation intervening, focus on structural and language training (repetition of verbal statements, location of concepts concretely, and production of verbal statements), the teaching of arithmetic through language operations (using mathematical statements), and the teaching of reading as a logical process (aiding Ss in the search for rules for decoding print.) This project has the sharpest focus of all those described and reports short term gains of 9-15 months on various measures used (incl. I.T.P.A.). The children are still being followed up (now in grade 2 or 3), and should the early gains hold up and result in sharply increased academic performance as late as grade six, this may turn out to be a demonstration of the possibility of truly compensating for early training deficiencies in a relatively short period of time with intensive interventions.

2. Early Training Project[39]--This program takes in children one or two years before they enter first grade (there are no local kindergartens). Classroom instruction takes place five mornings a week for ten weeks during the summer and is followed up for the entire school year following with regular weekly home visits by a family worker for the purpose of upgrading the parent ability to provide relevant instruction. The summer program is under the direction of two psychologists from George Peabody College for Teachers and is staffed by a head teacher and five graduate student group leaders for each group of twenty children. Interventions center around two main classes of variables--attitudes

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[39] Susan Gray and R. A. Klaus, "An Experimental Preschool Program for Culturally Deprived Children," reprint from Child Development, 1965, 36, p. 887-898.

towards achievement and aptitudes for achievement. The children rotate each day, five to a group leader, through a series of activities focusing on motivation, success, reinforcement, and delay of gratification; language, cognitive and perceptual development. Evaluation, planning (and in-service staff training) sessions are held daily under the direction of the psychologists. Evaluation of the program is underway through an experimental research design.

3. Perry Preschool Project[40]--This is a two-year program with children coming to cognitively oriented morning sessions and teachers visiting their homes in the afternoons to involve the mothers regularly in the educative process. The morning program consists of "structured group teaching" that appears to be very similar to the Klaus-Gray program and "organized area teaching" where cognitive-language instruction accompanies freely chosen activities in various areas of the room (e.g. store or family corner). The single most effective approach has been labled "verbal bombardment" where the teacher maintains a steady stream of questions and comments to draw the child's attention to aspects of his environment. This program is also being researched longitudinally.

4. Child Study Center Experimental Program[41]--This was a ten-week experimental comparison of three fairly distinctive programs of preschool intervention during the summer prior to kindergarten: (1) Montessori-like emphasis on arts and crafts tasks of increasing complexity and difficulty, basically a standard nursery program with focus on building success image;

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[40] Perry Preschool Project Progress Report. Ypsilanti, Michigan: Ypsilanti Public Schools, June, 1964.

[41] Lenrow, Child Study Center, University of California, Berkeley, Summer, 1966.

(2) Piaget-derived program with regular practice under guidance of small-group leaders on such operations as classification, seriation and seeing reversibility; like Bereiter program but with Piaget orientation; and (3) Parent-Cooperative nursery with highly trained head teacher stressing individual attention to emerging needs of children--more like Ypsilanti parent-training focus. All three had elements of continual evaluation and planning sessions within the separate staffs...like Klaus-Gray.

Two elements of this program are worth special mention. The groups of children were integrated, consisting of half middle-class white students and half lower-class (mostly Negro) students selected from the Berkeley Headstart population. The parent cooperative pattern has been adopted this year as the way of implementing the A.B. 1331 effort, although more intensive staff (and parent) training efforts are planned than took place during the summer.

5. New York Experimental Preschool[41]--Like the Peabody School this program covers a broader spectrum of activities and experience than the Bereiter program, though the emphasis is still on cognitive development. The program is being carefully researched. Deutsch is presently preparing a book dealing specifically with his program.

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[42] Deutsch, M., "Social and Psychological Perspective for the Facilitation of the Development of the Preschool Child." Prepared for the Arden House Conf. on Pre-School Enrichment of Socially Disadvantaged Children, 1962, Mimeo.

Recommendations and Guidelines

From the analysis presented in this paper several general guidelines for developing educational programs for socially disadvantaged youths seem clear. Let us list them briefly and then elaborate.

1. Investments into compensatory education should be designed to provide increments to our understanding of instruction and learning, and the diffusion of validated information.

2. The importance of the development of language as a tool of thought, its development through parent-child interaction during infancy and pre-school years, and the adverse effects on self-image, expectations, and motivation consequent on failure, dictate a central focus upon early childhood cognitive training and work with parents or future-parents.

3. The socio-cultural characteristics of a school have stronger demonstrable causal effects upon the intellectual development of students than do material facilities or the organization or provision of specialized services. These variations are linked to the social-class composition of the student clientele--not racial balance *per se*. Disadvantaged children are more sensitive to the extra-familial milieu than privileged children. These considerations underscore the importance of social integration of schools in order to attain equal educational opportunity.

One of the most difficult problems faced by those who would bring about changed in educational programs stems from the combined forces of tradition and the day-to-day, year-to-year necessity for maintaining such programs in operation. Virtually all people of school age and older have been involved in school programs as they now are, and while

needed research and development is carried out, school must keep. In the face of this, what is required is the deliberate development of rather potent strategies for effecting social change both within public school establishments and in the wider community setting. The cost of devising and carrying out such strategies must be reckoned as part of the cost of public education.

One general approach to meeting this problem is to link local school districts with other agencies such as universities, colleges, regional laboratories, and/or research and development centers in long-term, well-supported cooperative development, research and staff training programs. The rationale for this kind of arrangement is as follows.

A school system's function is to provide on-going programs of educational services to children and their parents. Such programs not only serve a population, but can provide laboratory settings for developing different kinds of services and for training professional workers. However, because of the nature of its political and economic relationship to a local community, it is difficult for a school system itself to carry on rigorous evaluation of its programs. It is also difficult for school personnel to rethink practices because they are deeply involved in maintaining what exists in operation. This makes schools very dependent upon "packaged" programs from publishers, curriculum projects, and other outside sources. The typical result is piecemeal (i.e., for only two or three grade levels), unarticulated innovations that are not adequately tailored to local needs (characteristics of children, etc.), not built into adequate teacher preparation programs, and (probably) not significantly different from what was replaced. Above all, there is

usually not sufficient attention to bringing about real changes in the substance of the teaching-learning interactions in the classroom.

A university, on the other hand, may contain a number of departments (or an R&D center with different divisions) possessing both competence and interest in development and research activities relevant to educational programs. Such departments are often in a position to do the kind of short-term and longitudinal research which is needed not only for the evaluation of particular programs, but which could add to our basic knowledge about education. What is usually lacking are populations of children (and teachers) in field situations with which to carry on this research, so that the findings might eventually be more widely applicable. Even research and development in laboratory, or "campus" schools has been found to be very limited.

Continuing cooperative arrangements between universities and school systems--either directly or through regional centers--could be very fruitful. Working with an agency which is in a position to study the whole community rather than confine its attention to the school population, could permit the exploration of variables and relationships that heretofore have not been viewed together within a common framework of interest in instructional services. Since the university or college is also the main agency for teacher education (both in schools or departments of education and in other departments), such programs could respond much more quickly to the demands of program changes in the school, and help produce change where it is most essential--in the teacher.

Curriculum Development and Training Centers

An organizational model for this long-range cooperative effort could be called a Curriculum Development and Training Center. Such a center would be located in a school district and would include components from a nearby university, state college, or regional laboratory. The Center could be conceived of as an "educational park" or "educational complex," but should in any case encompass a full range of educational levels--pre-kindergarten up through at least high school, and some aspects of teacher education. Also directly related should be a number of community agencies in addition to the schools. Each Center would have to have delegated to it by both the local school authorities and the state, a substantial degree of autonomy in the making of fiscal and other policy decisions, and receive enough financial support to be able truly to strike out in new and promising directions. In the related institution for higher education, or regional laboratory, there should be scholars from a number of disciplines in addition to education and psychology working in and for the Center.

Basic support for such a center should include funds, not linked to program, to attract outstanding research scholars and finance basic data collection and analysis for research over and above administrative and record-keeping data processing requirements.

The current major sources of program support and stimulation--the OEO and ESEA Title I provision (PL 89-10)--are not only conducive to piecemeal, hasty, program development without adequate research controls; their provisions for eligibility which call for documentation that the program will primarily serve the poor are inherently antithetical to school integration. Although administrators of the provisions of these bills, of course, favor school integration, in the face of

community recalcitrance, apathy, or uncertainty, they can do little beyond serving in a consultative role where local community conflict calls for adjudication and diplomacy.

The federal and state legislative enactments should encourage the development of integrated educational parks linked to research and development programs. These educational complexes must have the talent and resources to provide <u>better</u> educational services which the public demands than are available in segregated or private schools.

Education of Disadvantaged Children in California
A Report to the California Committee on Public Education

ABSTRACT

Alan B. Wilson, Arthur R. Jensen, and David L. Elliott

Identification of disadvantaged youths, and the development of educational policies intended to maximize intellectual development, require differentiation among the sources of retardation and knowledge of modifiable causal agents. The distinction between "primary" (biological) and social sources of retardation is conceptually clear, but diagnosis is difficult in the field--especially among lower-class children. It cannot be based upon measured intellectual attainments, where it is, educational practice and expectations are inappropriate.

The major proximate cause of social retardation is the failure to develop adequate verbal skills which mediate thought processes and are necessary for school success. These skills are developed primarily through parent-child interaction during infancy and pre-school years. Disadvantage on entry into school is typically not reversed but rather accentuated through the school years. These considerations lead to an emphasis upon early training specific to the linguistic-cognitive skills which are deficient. Several pre-school programs are appraised.

Most investments and services to schools which are readily mandated as "projects" do not show an appreciable relation to intellectual development; and most projects are not designed to clarify the specific causes of their success or failure. Intervention should be designed to contribute reliable knowledge to a "technology" of instruction.

While the material and organizational characteristics of a school are not clearly related to educational outcomes, socio-cultural characteristics are. Adverse consequences ensuing from social-class segregation of schools restrict the "equality of opportunity" of children with similar initial intellectual endowments.

Legislation and funds should encourage the development of integrated "educational parks" which link school districts with Research and Development centers.